

### REMARKS

Applicants respectfully request that the present Application be amended to include the attached Figures 47-50. Pursuant to 37 C.F.R. 1.53(b), inclusion of such figures will add no new matter to the Application. In support thereof, Applicants submit the following:

1. On March 2, 2004, the above-referenced Patent Application, a Utility Patent Application Transmittal (Large Entity) ("the Transmittal"), a Declaration, a Preliminary Amendment and a Postcard were placed in an Express Mail envelope and submitted to the U.S. Patent and Trademark Office. Attached as Appendix "A" is a true and correct copy of the Express Mail label and corresponding Postcard, evidencing deposit of the above items on March 2, 2004. *See* MPEP 503 and 37 C.F.R. § 1.10.

2. The submitted Transmittal and Preliminary Amendment claimed priority to, *inter alia*, U.S. Patent Application Nos. 09/668,441 and 09/028,751. The Preliminary Amendment incorporated each of the foregoing patent applications by reference in their entirety. In addition, the Transmittal incorporated by reference the entire disclosure of each of the foregoing patent applications. Attached as Appendix "B" is a true and correct copy of the Transmittal and Preliminary Amendment.

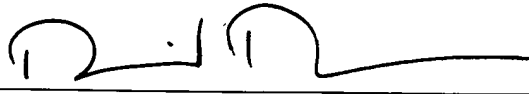
3. The Patent Office has indicated that Figures 47-50 were not received with the filing of the present Application. However, both U.S. Patent Application Nos. 09/668,441 and 09/028,751 included Figures 47-50. Since the Transmittal and Preliminary Amendment claimed priority to and incorporated U.S. Patent Application Nos. 09/668,441 and 09/028,751 by reference in their entirety, Figures 47-50 were constructively included with the filing of the present Application. Thus, inclusion of Figures 47-50 with the present Application will add no new matter to the Application. 37 C.F.R. §1.53(b); *See generally In re Lund*, 54 CCPA 1361, 376 F.2d 972, 989, 153 U.S.P.Q. (BNA) 625, 631 (1967); *See also* MPEP 608.01(p)(2)(B).

4. Attached as Appendix C is a true and correct copy of Figures 47-50.

Therefore, Applicants respectfully request that the present Application be amended to include the attached Figures 47-50. The Examiner is cordially invited to contact the Applicants' undersigned representative with any questions or comments relating to this Second Preliminary Amendment. It is not believed that any fees are owed with respect to this Second Preliminary Amendment, however, any such fees can be charged to Deposit Account No. 50-1419.

Respectfully submitted,

MARSH FISCHMANN & BREYFOGLE LLP

By: 

David F. Dockery

Reg. No. 34,323

3151 South Vaughn Way, Suite 411

Aurora, Colorado 80014

Telephone: (303) 338-0997

Facsimile: (303) 338-1514

Date: July 14, 2004



EV 386650560 US

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Attorney: David F. Dockery/lp

Date: March 2, 2004

PTO Stamp indicates receipt of: ☒ Patent Matter ☐ Trademark Matter

Application Docket No.: 41890-01693

Applicant: Hampden-Smith et al.

Title or Mark: Palladium-Containing Particles, Method and Apparatus of Manufacture, Palladium-Containing Devices Made Therefrom

Serial/Reg. No.: Not Yet Known

Filed/Issued Date: March 2, 2004

☒ Certificate of Mailing

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151 No. of Pages in Specification

28 No. of Pages in Claims

1 No. of Pages in Abstract

42 No. of Sheets of Drawings

(Figs. 1-63)

LIST ALL DOCUMENTS BEING SENT TO PATENT OFFICE:

1. Utility Patent Application Transmittal (4 pages)
2. Utility Patent Application (151 pages)
3. Preliminary Amendment (5 pages)
4. Declaration (8 pages)
5. 42 Sheets of Drawings
6. Certificate of Mailing By Express Mail (1 page)

EV386650560US

Attorney: David F. Dockery/lp

Date: March 2, 2004

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Application Docket No.: 41890-01693

Applicant: Hampden-Smith et al.

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(Figs. 1-63)

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5. 42 Sheets of Drawings
6. Certificate of Mailing By Express Mail (1 page)

19270 U.S. PTO  
10/790958



030204

**CERTIFICATE OF MAILING BY "EXPRESS MAIL" (37 CFR 1.10)**Applicant(s): **Hampden-Smith et al.**

Docket No.

**41890-01693**

Serial No.

Not Yet Assigned

Filing Date

March 2, 2004

Examiner

Not Yet Assigned

Group Art Unit

Not Yet Assigned

Invention: **PALLADIUM-CONTAINING PARTICLES, METHOD AND APPARATUS OF MANUFACTURE,  
PALLADIUM-CONTAINING DEVICES MADE THEREFROM**

I hereby certify that the following correspondence:

Utility Pat App Trans (4); Utility Pat App (151); 42 Sheets Drawings; Declaration (8); Prelim Amend (5)

*(Identify type of correspondence)*

is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on

March 2, 2004*(Date)*Lynn Pennywell*(Typed or Printed Name of Person Mailing Correspondence)*  
*(Signature of Person Mailing Correspondence)*EV 386650560 US*("Express Mail" Mailing Label Number)***Note: Each paper must have its own certificate of mailing.**

# UTILITY PATENT APPLICATION TRANSMITTAL (Large Entity)

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Docket No.  
41890-01693

Total Pages in this Submission  
212

## TO THE COMMISSIONER FOR PATENTS

Mail Stop Patent Application  
P.O. Box 1450  
Alexandria, VA 22313-1450

Transmitted herewith for filing under 35 U.S.C. 111(a) and 37 C.F.R. 1.53(b) is a new utility patent application for an invention entitled:

**PALLADIUM-CONTAINING PARTICLES, METHOD AND APPARATUS OF MANUFACTURE,  
PALLADIUM-CONTAINING DEVICES MADE THEREFROM**

and invented by:

Mark J. Hampden-Smith, 2901 Maximillian NW, Albuquerque, NM 87104; Toivo T. Kodas, 11102 San Rafael Drive NE, Albuquerque, NM 87122; Quint H. Powell, 2422 Ashley Ridge Lane, Sugar Land, TX 77478; Daniel J. Skamser, 303 Snap Creek Court, Simpsonville, SC 29681; James Caruso, 7721 Cedar Canyon Court NE, Albuquerque, NM 87122; Clive D. Chandler, 10706 SW Capitol Highway, #44, Portland, OR 97219

If a **CONTINUATION APPLICATION**, check appropriate box and supply the requisite information:

☐ Continuation ☒ Divisional ☐ Continuation-in-part (CIP) of prior application No.: 09/668,441

Which is a:

☒ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No.: 09/028,751

Which is a:

☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No.: \_\_\_\_\_

Enclosed are:

### Application Elements

1. ☒ Filing fee as calculated and transmitted as described below
2. ☒ Specification having 151 pages and including the following:
  - a. ☒ Descriptive Title of the Invention
  - b. ☒ Cross References to Related Applications (if applicable)
  - c. ☐ Statement Regarding Federally-sponsored Research/Development (if applicable)
  - d. ☐ Reference to Sequence Listing, a Table, or a Computer Program Listing Appendix
  - e. ☒ Background of the Invention
  - f. ☒ Brief Summary of the Invention
  - g. ☒ Brief Description of the Drawings (if filed)
  - h. ☒ Detailed Description
  - i. ☒ Claim(s) as Classified Below
  - j. ☒ Abstract of the Disclosure

**UTILITY PATENT APPLICATION TRANSMITTAL**  
**(Large Entity)**

*(Only for new nonprovisional applications under 37 CFR 1.53(b))*

Docket No.  
41890-01693

Total Pages in this Submission  
212

**Application Elements (Continued)**

3. ☒ Drawing(s) *(when necessary as prescribed by 35 USC 113)*
- a. ☐ Formal                      Number of Sheets \_\_\_\_\_
- b. ☒ Informal                      Number of Sheets 42
4. ☒ Oath or Declaration
- a. ☐ Newly executed *(original or copy)*                      ☐ Unexecuted
- b. ☒ Copy from a prior application (37 CFR 1.63(d)) *(for continuation/divisional application only)*
- c. ☐ With Power of Attorney                      ☐ Without Power of Attorney
- d. ☐ DELETION OF INVENTOR(S)  
Signed statement attached deleting inventor(s) named in the prior application,  
see 37 C.F.R. 1.63(d)(2) and 1.33(b).
5. ☒ Incorporation By Reference *(usable if Box 4b is checked)*  
The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under  
Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby  
incorporated by reference therein.
6. ☐ CD ROM or CD-R in duplicate, large table or Computer Program (Appendix)
7. ☐ Application Data Sheet (See 37 CFR 1.76)
8. ☐ Nucleotide and/or Amino Acid Sequence Submission *(if applicable, all must be included)*
- a. ☐ Computer Readable Form (CRF)
- b. ☐ Specification Sequence Listing on:
- i. ☐ CD-ROM or CD-R (2 copies); or
- ii. ☐ Paper
- c. ☐ Statement(s) Verifying Identical Paper and Computer Readable Copy

**Accompanying Application Parts**

9. ☐ Assignment Papers *(cover sheet & document(s))*
10. ☐ 37 CFR 3.73(B) Statement *(when there is an assignee)*
11. ☐ English Translation Document *(if applicable)*
12. ☐ Information Disclosure Statement/PTO-1449                      ☐ Copies of IDS Citations
13. ☒ Preliminary Amendment
14. ☒ Return Receipt Postcard (MPEP 503) *(Should be specifically itemized)*
15. ☐ Certified Copy of Priority Document(s) *(if foreign priority is claimed)*
16. ☒ Certificate of Mailing
- ☐ First Class    ☒ Express Mail *(Specify Label No.):* EV 386650560 US

*(Only for new nonprovisional applications under 37 CFR 1.53(b))*

**Total Pages in this Submission**  
**212**

17. ☐ Additional Enclosures (please identify below):

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18. ☐ Pursuant to 35 U.S.C. 122(b)(2), Applicant hereby requests that this patent application not be published pursuant to 35 U.S.C. 122(b)(1). Applicant hereby certifies that the invention disclosed in this application has not and will not be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication of applications 18 months after filing of the application.

***An applicant who makes a request not to publish, but who subsequently files in a foreign country or under a multilateral international agreement specified in 35 U.S.C. 122(b)(2)(B)(i), must notify the Director of such filing not later than 45 days after the date of the filing of such foreign or international application. A failure of the applicant to provide such notice within the prescribed period shall result in the application being regarded as abandoned, unless it is shown to the satisfaction of the Director that the delay in submitting the notice was unintentional.***



**UTILITY PATENT APPLICATION TRANSMITTAL**  
**(Large Entity)**

*(Only for new nonprovisional applications under 37 CFR 1.53(b))*

Docket No.  
41890-01693

Total Pages in this Submission  
212

**Fee Calculation and Transmittal**

**CLAIMS AS FILED**

For	#Filed	#Allowed	#Extra	Rate	Fee
Total Claims	11	- 20 =	0	x \$18.00	\$0.00
Indep. Claims	2	- 3 =	0	x \$86.00	\$0.00
Multiple Dependent Claims (check if applicable) <input type="checkbox"/>					\$0.00
BASIC FEE					\$770.00
OTHER FEE (specify purpose) _____					\$0.00
TOTAL FILING FEE					\$770.00

- ☒ A check in the amount of \$770.00 to cover the filing fee is enclosed.
- ☒ The Director is hereby authorized to charge and credit Deposit Account No. \_\_\_\_\_ as described below.
- ☐ Charge the amount of \_\_\_\_\_ as filing fee.
- ☒ Credit any overpayment.
- ☒ Charge any additional filing fees required under 37 C.F.R. 1.16 and 1.17.
- ☐ Charge the issue fee set in 37 C.F.R. 1.18 at the mailing of the Notice of Allowance, pursuant to 37 C.F.R. 1.311(b).

  
Signature

David F. Dockery  
Registration No. 34,323  
Marsh Fischmann & Breyfogle LLP  
3151 South Vaughn Way, Suite 411  
Aurora, CO 80014

Dated: March 2, 2004

cc:

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of:

Hampden-Smith et al.

Serial No.: Not Yet Assigned

Filed: March 2, 2004

Confirmation No.: Not Yet Known

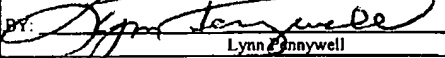
Atty. File No.: 41890-01693

For: "PALLADIUM-CONTAINING  
PARTICLES, METHOD AND APPARATUS  
OF MANUFACTURE, PALLADIUM-  
CONTAINING DEVICES MADE  
THEREFROM"

) Group Art Unit: Not Yet Known

) Examiner: Not Yet Assigned

) PRELIMINARY AMENDMENT

"EXPRESS MAIL" MAILING LABEL NO.: EV 386650560US DATE OF DEPOSIT: March 2, 2004 I HEREBY CERTIFY THAT THIS PAPER OR FEE IS BEING DEPOSITED WITH THE UNITED STATES POSTAL SERVICE "EXPRESS MAIL POST OFFICE TO ADDRESSEE" SERVICE UNDER 37 C.F.R. 1.10 ON THE DATE INDICATED ABOVE AND IS ADDRESSED TO COMMISSIONER FOR PATENTS, P.O. BOX 1450, ALEXANDRIA, VA 22313-1450. MARSH FISCHMANN & BREWFOGLE LLP BY:  Lynn Ennywell
---

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

Prior to examination of the above-identified U.S. patent application, Applicants request entry of the following preliminary amendment.

Amendments to the specification begin at Page 2 of this letter.

Amendments to the Claims begin at Page 3 of this letter.

## AMENDMENTS TO THE SPECIFICATION

Please replace the paragraph beginning at page 1, line 6, the Field of the Invention section, with the following amended paragraph:

This application is a divisional application of U.S. Patent Application No. 09/668,441, filed on September 22, 2000, now U.S. Patent No. 6,699,304, which is a continuation of U.S. Patent Application Serial No. 09/028,751, filed on February 24, 1998, now U.S. Patent No. 6,159,267, which in turn claims priority to U.S. Provisional Patent Application No. 60/039,450 filed February 24, 1998 and to U.S. Provisional Patent Application No. 60/038,258 filed February 24, 1998, the contents of which are incorporated herein. Each of the foregoing is incorporated herein by reference in its entirety.

IN THE CLAIMS:

1-142. (Cancelled)

143. (Original) A method for making a palladium-containing film, the method comprising the steps of:

applying a layer of paste to a substrate, said paste including particles dispersed in a carrier liquid, said particles including a metallic phase with greater than about 10 weight percent palladium, said particles having a weight average size of from about 0.1 micron to about 4 microns;

removing said carrier liquid from said layer of paste and forming on said substrate a film including palladium from said particles;

wherein, said metallic phase is substantially polycrystalline with a mean crystallite size of larger than about 50 nanometers and said particles have a resistance to oxidation of said palladium in said particles such that, when said particles are heated in an atmosphere of industrial grade air at atmospheric pressure to a temperature of 900° C at a heating rate of about 10° C per minute during thermogravimetric analysis, said particles demonstrate a maximum weight gain of no greater than about 40 percent relative to a theoretical weight gain for complete oxidation of said palladium in said particles.

144. (Original) A method for making a palladium-containing film, the method comprising the steps of:

applying a layer of paste to a substrate, said paste including palladium-containing particles dispersed in a carrier liquid, said particles having a weight average size of from about 0.1 micron to about 3 microns;

removing said carrier liquid from said layer of paste and forming on said substrate a film including palladium from said particles;

wherein, said particles having a size distribution such that greater than about 90 weight percent of said particles are smaller than about twice said weight average size and said particles including a first material phase comprising palladium and a second material phase being substantially free of palladium.

145. (Original) The method of Claim 144, wherein:

said first material phase comprises greater than about 50 weight percent of said particles.

146. (Original) The method of Claim 144, wherein:

said second material phase comprises less than about 30 weight percent of said particles.

147. (Original) The method of Claim 144, wherein:  
said first material phase is electrically conductive and said second material phase is dielectric.

148. (Original) The method of Claim 144, wherein:  
said substrate comprises a dielectric material for a capacitor and said second material phase of said particles also comprises said dielectric material.

149. (Original) The method of Claim 144, wherein:  
said dielectric material is a titanate.

150. (Original) The method of Claim 144, wherein:  
said second material phase comprises an oxide material.

151. (Original) The method of Claim 144, wherein:  
said second material phase comprises a ceramic material.

152. (Original) The method of Claim 144, wherein:  
said step of forming on said substrate a film including palladium from said particles comprises heating said particles, on said substrate, to a temperature of greater than about 300° C.

153. (Original) The method of Claim 144, wherein:  
said method further comprises preparing a structure of stacked layers including a plurality of first layers including a dielectric material and second layers including said particles; and  
heating said structure to a temperature of greater than about 300° C to form a microelectronic structure including a plurality of palladium-containing films, having palladium from said particles, and including a plurality of dielectric layers, with at least one of said dielectric layers being between two adjacent of said palladium-containing films.

154-167. (Cancelled)

REMARKS

Applicants have amended the present application to insert the priority claim and also to cancel Claims 1-142 and Claims 154-167.

It is not believed that any fees are owed with respect to this Preliminary Amendment, however any such fees can be charged to Deposit Account No. 50-1419.

Respectfully submitted,

MARSH FISCHMANN & BREYFOGLE LLP

By: 

David F. Dockery  
Registration No. 34,323  
3151 South Vaughn Way, Suite 411  
Aurora, Colorado 80014  
(303) 338-0997

Date: March 2, 2004